

Meadow Hill Drive Bridge
Spanning Wilson Creek at Meadow Hill Drive
Menomonie
Dunn County
Wisconsin

HAER No. WI-96

HAER
WIS
17-MENO,
1-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
Department of the Interior
National Park Service
Great Lakes Systems Office
1709 Jackson Street
Omaha, Nebraska 68102-2571

HISTORIC AMERICAN ENGINEERING RECORD

MEADOW HILL DRIVE BRIDGE HAER No. WI-96

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17- MENO,
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Location: Spanning Wilson Creek at Meadow Hill Drive, City of Menomonie, Dunn County, Wisconsin

USGS Quad: Menomonie North

UTM Coordinates: 15:584560;4970600

Date of Construction: 1925-1926

Present Owner: Dunn County

Present Use: Highway Bridge

Significance: The Meadow Hill Drive Bridge is an excellent example of a steel, riveted, Parker overhead truss designed by the Wisconsin State Highway Commission during the period 1911 to 1925. During these years, the commission took on the responsibility of designing all highway bridges in the state, utilizing standardized plans. While the riveted steel superstructure of the Meadow Hill Drive Bridge is heavier than that of earlier bridges built by independent bridge companies, the construction is not nearly so substantial as trusses dating from the following period, between 1926 and 1931, when the state used larger-section steel members. Steel overhead trusses are now fairly rare in Wisconsin, most having been replaced. Parker trusses are particularly scarce, for fewer trusses of this kind were built than the more common Pratt.

Historians: Charlene K. Roise, Demian J. Hess, Denis P. Gardner
Hess, Roise and Company, Minneapolis, Minnesota
July 1996

DESCRIPTION

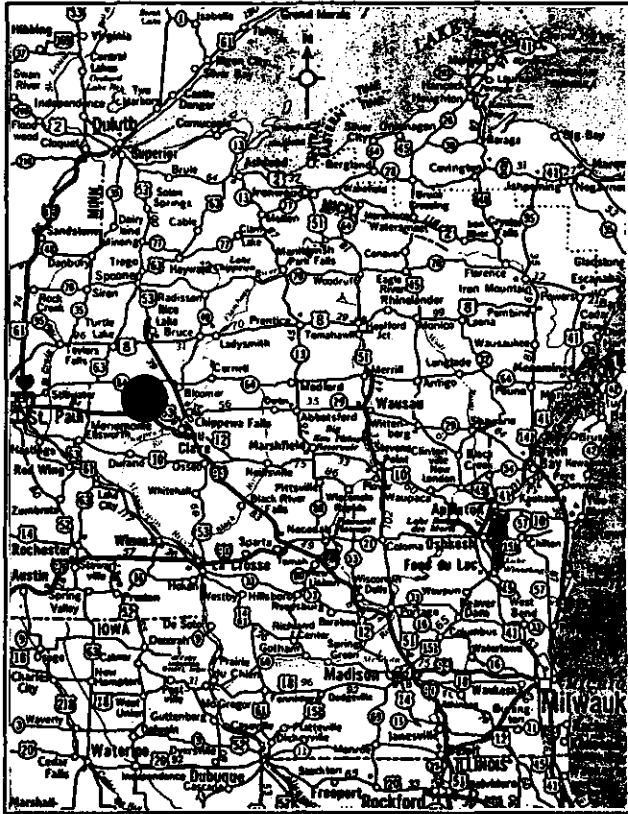


Figure 1 Map of Wisconsin with Menomonie highlighted.

The Meadow Hill Drive Bridge (WisDOT P-17-0708) is located in the city of Menomonie and carries a small, paved, city street over Wilson Creek (see figures 1 and 2).¹ The creek runs from the northwest to the southeast, draining into Lake Menominee a few hundred yards below the bridge. Due to the angle of the creek, the bridge is oriented on a northeast-southwest line. A railroad crossing is located immediately upstream (northwest) of the Meadow Hill Drive Bridge, and a highway structure carries U.S.

Highway 12 over a portion of Lake Menominee just to the southeast. The Red Cedar River leaves Lake Menominee a few yards below the mouth of Wilson Creek. A concrete dam, operated by the Northern States Power Company, is located at the head of the river and controls the level of the lake.

¹ Appearance and condition of bridge based upon field inspection of the structure by Demian Hess, 21 May 1993.

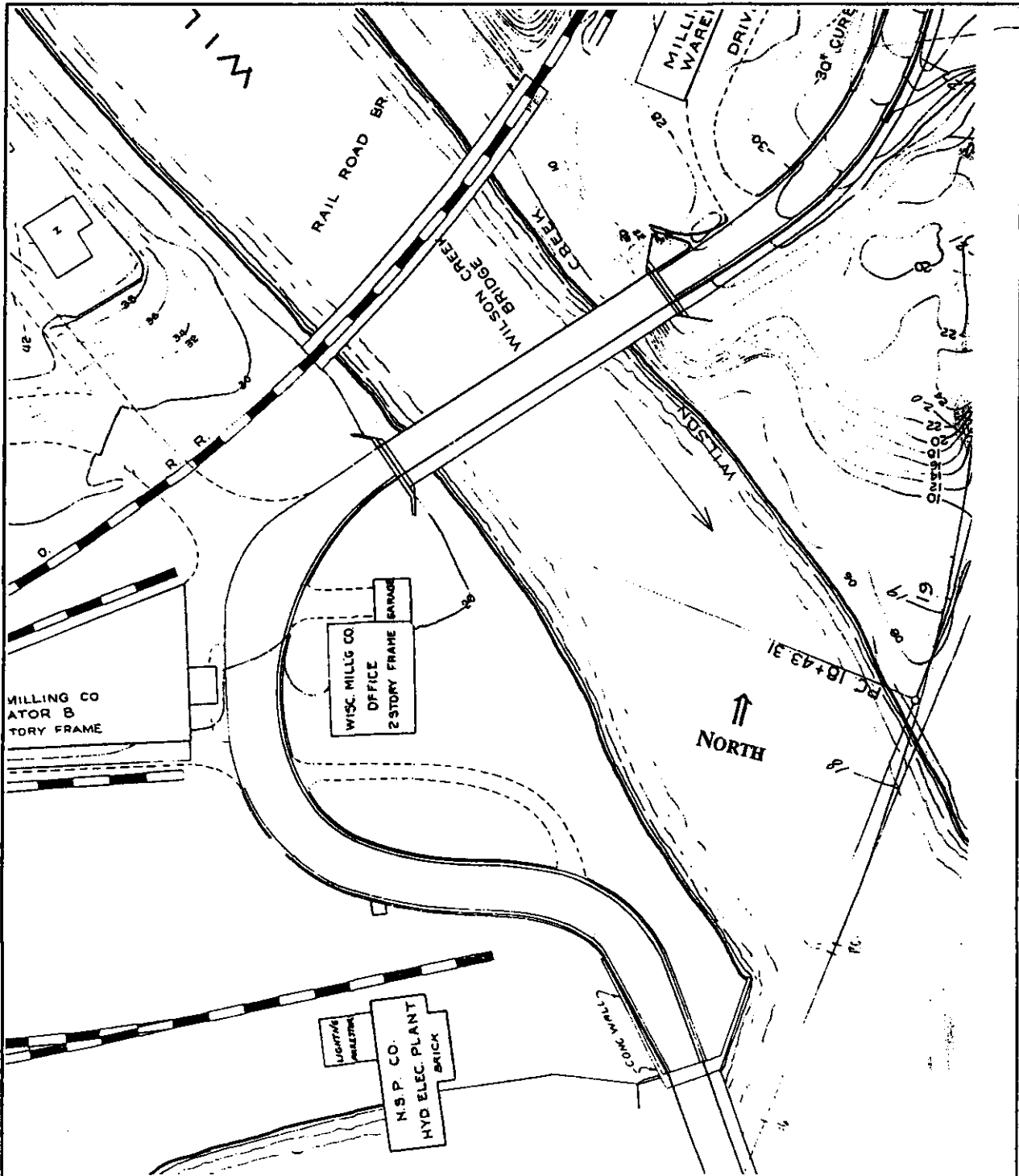


Figure 2 Section from "Topographic Map, Red Cedar River Bridge Site, City of Menomonie," probably prepared by the Wisconsin State Highway Commission, c. 1940.

The bridge consists of a single, steel, 10-panel, riveted Parker through truss with a span of 175'-0" (see plans following this narrative). The truss carries an 18'-10"-wide reinforced concrete deck which is enclosed by lattice railings attached to the inside of the truss webs. Steel brackets carry an 8'-0"-wide, reinforced concrete sidewalk along the outside of the southeast web. The outer edge of the walk is enclosed by a lattice railing. The truss rests on solid concrete abutments with flared, sloped wing walls.

All truss members are standard steel components, with built-up members riveted together. The upper chord and inclined end posts are composed of back-to-back channel sections tied by a top batten plate and bottom lacing. The lower chord is formed by four heavy angle sections connected by batten plates. Back-to-back channels tied by lacing comprise the vertical members. Diagonals consist of heavy angle sections with battens. Portal bracing is formed by angle sections, while three levels of cross-braced struts comprised of angles and lacing serve as sway bracing. The top and bottom laterals are composed of cross-braced angle sections. The bridge is currently in excellent condition, with no apparent damage, deterioration or alteration to either the superstructure or substructure.

STANDARDIZED BRIDGE DESIGN IN WISCONSIN

The Meadow Hill Drive Bridge displays a standard Wisconsin State Highway Commission design of the period. The commission began developing and distributing standardized bridge plans soon after its creation in 1911. The state's engineers preferred riveted

over pinned connections to increase structural rigidity and reduce damaging vibrations. The riveted Warren became the state's standard pony truss design, while riveted Pratts were generally used for shorter overhead bridge spans. For spans over 150', such as the Meadow Hill Drive Bridge, the state relied on Parker trusses until the 1930s. The Meadow Hill Drive Bridge was apparently one of the last Parkers to feature built-up members formed from relatively light steel sections riveted together. After 1925, the commission began to use much more substantial steel sections to create truss members. After 1931, it abandoned built-up construction altogether in favor of rolled sections. In the mid-1930s, the commission began to prefer overhead Warren trusses for long-span bridges, although some overhead Pratts continued to be built.²

THE WILSON CREEK CROSSING

The written history of the area goes back to 1822, when an entrepreneur constructed a dam and mill at Wilson Creek just below the current bridge site. This facility, which comprised the earliest industrial site in Dunn County, was subsequently destroyed in a flood, and the venture was largely abandoned. In 1827, however, James H. Lockwood, a fur trader, passed through the area and was impressed by the extensive pineries along the Red Cedar River and the potential water power offered by Wilson Creek. In partnership with another man, Lockwood built a new dam and shingle mill at the Wilson Creek site in 1828. Eventually acquired by the

² *Cultural Resource Management in Wisconsin: A Manual for Historic Properties* (Madison, WI: Historic Preservation Division, State Historical Society of Wisconsin, 1986), vol. 2, section 12, 12-16.

Knapp, Stout Lumber Company, one of the major players in the state's timber industry, the dam at Wilson Creek became the center for an extensive lumber operation. By 1891, in addition to the Wilson Creek dam and shingle mill, the company maintained a dam across the Red Cedar River just below the mouth of Wilson Creek. This dam created Lake Menomin, and provided power for two additional sawmills and a flour mill.³

A bridge was probably erected over Wilson Creek shortly after the construction of the 1828 dam to facilitate travel. A plat of the area drawn in 1877 clearly shows a bridge immediately upstream from the dam. The structure appears to have served a cluster of mill buildings standing near the dam on either side of the stream. At that time, the buildings included a store on the southwest bank of the creek and a bunkhouse on the northeast. By 1888, the number of buildings had increased to include a large complex of warehouses, foundries, shops and offices. The appearance of the nineteenth-century bridge (or bridges) is not known. By the early 1920s, a simple timber trestle with a 16'-0" roadway and a 6'-0"-wide sidewalk served as the crossing.⁴

In the late 1910s or early 1920s, the bridge over Wilson Creek became part of State Trunk Highway 12, connecting Menomonie, the seat of Dunn County, with a statewide network of roads. This highway system was first authorized by the state legislature in 1917, and

³ George Forrester, *Historical and Biographical Album of the Chippewa Valley, Wisconsin* (Chicago: A. Warner, publisher, 1891-1892), 141-165; F. Curtiss-Wedge and others, *History of Dunn County* (Minneapolis: H.C. Cooper, Jr. and Co., 1925), 50-60.

⁴ Nash and Morgan, *Dunn County Plat, 1877* (N.p., 1877), at the Area Research Center, University of Wisconsin-Stout, Menomonie, Wisconsin; *Plat Book of Dunn County, Wisconsin* (Minneapolis: C.M. Foote and Co., 1888); Northern States Power Company, Wisconsin-Minnesota Light and Power Company Division, "Topographic Map, Menomonie Dam Site," February 1924, copy held at Cedar Corporation, Menomonie, Wisconsin.

Highway 12 was probably designated shortly afterwards. Coming from the north, the highway crossed the Wilson Creek bridge and angled sharply southeast. The route then ran down a steep hill toward the lake shore, where it turned south over a bridge traversing the Red Cedar River. From there, the road ran straight into the downtown district. Residents recall that the S-curve between the two bridges was extremely hazardous and unpopular.⁵

In May 1923, the state highway commission allocated \$65,000 for improvements to Route 12. The project included construction of a new bridge over Wilson Creek to link the upgraded highway with the existing Red Cedar River Bridge to the southwest. The project was delayed, however, when officials of the Chicago, Milwaukee & St. Paul Railroad would not agree to remove their tracks running between the Red Cedar River Bridge and the proposed southwest approach to the new bridge. The tracks were at a much lower grade than the new bridge approach, which would force the road to dip at an unacceptably steep angle to reach the Red Cedar Bridge. Plans also called for the relocation of the Milwaukee Road's station near the creek's northeast bank. Federal and state transportation agencies required that the city arrange and pledge to pay for relocating the track and station before highway and bridge funds could be released. At the same time, the Northern States Power Company contemplated raising the level of a hydroelectric dam at the mouth of Lake Menomin, generating questions about necessary

⁵ On the existence of State Trunk Highway 12, see "New Markings on Trunk Highways," *Dunn County News* (hereafter *DCN*), 6 March 1924; for a history of the highway system see Wisconsin Highway Commission, *Fifth Biennial Report of State Highway Activities* (Madison: State of Wisconsin, 1924), 38-40; information on the hazardous curve provided by John Russell, telephone interview by Demian Hess, 27 May 1993.

bridge clearances.⁶

Two years later, in February 1925, Menomonie mayor Carl Peterson announced that he had reopened discussions with the state regarding the new bridge and road improvements. His efforts had the enthusiastic support of Al C. Anderson, a local resident and member of the Wisconsin Highway Commission. Anderson's influence in bringing the project to fruition was strengthened in the following month, when he was elected chairman of the commission. The proposed Wilson Creek structure was of reinforced concrete, with a center median featuring ornamental lights to match those on Menomonie's two "white ways." As with the earlier plans, removal of the railroad station and tracks was key to the new bridge's alignment.⁷

Soon thereafter, the mayor met with Milwaukee Road officials. The negotiations began favorably, with the railroad agreeing to move the station if the city would pay half the estimated \$15,000 cost. The issue of the tracks, however, remained unresolved, jeopardizing the chance for state and federal funding. Another problem surfaced a week before railroad officials were scheduled to arrive for a second round of meetings, when the city was frustrated in its attempts to acquire one of the parcels of land needed for the depot relocation. The new depot site impinged on the existing road right-of-way; plans called for the road to be realigned across a parcel held by the uncooperative owner. In the meantime, the urgent need for a new bridge was highlighted when the city engineer temporarily closed the old Wilson Creek trestle because of

⁶ "Revive Hopes for New Wilson Creek Bridge," *DCN*, 26 February 1925; "Progress Delayed in Depot Change; Await Site Plans," *DCN*, 12 March 1925.

⁷ *Ibid.*

ice-related structural problems during the spring thaw.⁸

Plans for the depot were hastily revised before the 31st of March, when the railroad officials were due to appear, to require only a small strip of land from the recalcitrant owner. On the day of the meeting, the owner agreed to a one-year sale option, perhaps persuaded by the threat of city condemnation proceedings and by pressure from the local Good Roads Committee and the Commercial Club, a Menomonie business association. With the assurance that the city would provide the land, railroad officials presented two alternative scenarios for the depot's relocation. Either the city could move the old depot and oil tanks to the new site, or the city could compensate the railroad company \$5,000 for taking care of the move. The mayor and Commercial Club representatives preferred the latter course, particularly when they learned that the railroad might use the city's subsidy to build an attractive new depot rather than recycle the old one. More good news was announced at the meeting: the Wisconsin Highway Commission agreed to pay for removal of the railroad tracks on the southwest bank of the creek, freeing the city from this responsibility.⁹

By mid-April, officials were confident that the entire project would be completed by the fall. On 25 April, representatives from the highway department's headquarters in Madison and regional office in Eau Claire inspected the project site. Later in the day, they travelled to Eau Claire to meet with engineers and staff of the Northern States Power Company regarding the

⁸ "Bridge Project Rests with City Council," *DCN*, 5 March 1925; "Progress Delayed in Depot Change; Await Site Plans," *DCN*, 12 March 1925; "Fails to Obtain All Land for Depot," *DCN*, 26 March 1925.

⁹ "Anderson Divulges New Plan of Board," *DCN*, 2 April 1925.

utility's future plans for the Lake Menomin dam. The Madison engineer continued on to Saint Paul to confer with the Omaha Railroad Company about a construction of a grade separation for their tracks, which transected another section of the proposed road.¹⁰

The outcome of the meeting with the Omaha line was a success, with the company agreeing to pay the \$5,870 cost of the railroad's overpass structure. The consultation with Northern States Power was also favorable. The Milwaukee Road, however, had gone into receivership, and its officials were slow to approve agreements covering the track and station relocation. It was not until mid-May that the city was finally assured that the contracts had been signed by the necessary parties at the company. Delays with the Milwaukee Road continued, however. In October, the city reviewed highway department plans for covering the tracks at the southwest end of the new bridge with 4'-6" of concrete to level the dip in the road. This could not be undertaken, however, until the depot on the other side of the creek was removed and the tracks reoriented. Despite Mayor Peterson's strenuous efforts to prod the railroad into action, the depot remained in place until the following year.¹¹

In the meantime, though, there was progress on the new bridge. By July, city crews had initiated work on the detour around the old station under a contract with the state highway department. Bids for building the new Wilson Creek bridge were due 31 July. Earlier that

¹⁰ "Club Lauds Men Who Secured New Highway Project," *DCN*, 16 April 1925; "Plans Progress for New State Bridge Project," *DCN*, 23 April 1925.

¹¹ "Expect Action Soon on Depot Removal Plans," *DCN*, 7 May 1925; "O.K. Depot Change," *DCN*, 14 May 1925; "City Council Approves New Highway Plan," *DCN*, 15 October 1925; "Expect Opening of New Bridge By New Year's," *DCN*, 24 December 1925.

month, the department had abandoned plans for the large concrete structure initially proposed, and switched instead to a steel overhead-truss design.¹² The reason for the change is unknown, but was presumably related to cost. The same motivation might have been responsible for the orientation of new bridge, which matched the original bridge rather than establishing a better road alignment. The new alignment would have required a significantly longer and more expensive structure. The state awarded the contract to the Minneapolis Bridge Company, which had submitted a bid for \$21,688. Contracts for the related concrete road construction and for the Omaha railroad overpass were to be let at a later date.¹³

Steel for the bridge arrived in Menomonie on 20 August, and excavation for the west abutment commenced the following week. The old timber bridge had been removed by this time. The contractor predicted that the new structure would be finished in about three months, but that proved overly optimistic. At the beginning of December, officials anticipated that the bridge would be in service later that month, but tests indicated that the concrete substructure was hardening more slowly than predicted, due to cold weather. Menomonie engineer Lydel Manor, who was responsible for the city's involvement with the project, finally announced that the bridge would be open to traffic on Sunday, 10 January. When the last bills were totalled, the cost of the bridge came to about \$25,000.¹⁴

¹² Wisconsin Highway Commission, "Wilson Creek Bridge," 5 sheets, plan number X1056, 16 July 1925.

¹³ "Let Contracts for New Creek Bridge," *DCN*, 30 July 1925; "Let Bridge Contract," *DCN*, 25 August 1925.

¹⁴ "Start Work on New Bridge Soon," *DCN*, 20 August 1925; "Start Steel Span," *DCN*, 27 August 1925; "Expect Opening of New Bridge by New Year's," *DCN*, 24 December 1925; "Stay Bridge Opening," *DCN*, 31 December 1925; "Open Bridge Sunday," *DCN*, 7 January 1925; "\$500,000 Spent in Building Projects During Past Year," *DCN*, 14 January 1926.

Around the time that the new bridge was built, State Trunk Highway 12 became part of U.S. Highway 12, the main route between Saint Paul, to the west, and Chicago, to the east. Although the Meadow Hill Drive Bridge remained in service for many years with no reported trouble, the state highway department continued to be concerned over the highway alignment leading to the structure. In 1934, the state once again prepared plans to straighten the road, proposing to construct a new bridge across the Red Cedar River which would carry the highway directly to the east side of Wilson Creek, bypassing the 1925 bridge. Work on the new alignment finally was completed in 1941. Although no longer a part of the main highway, the old bridge over Wilson Creek remained in use as a city crossing carrying Meadow Hill Drive.¹⁵

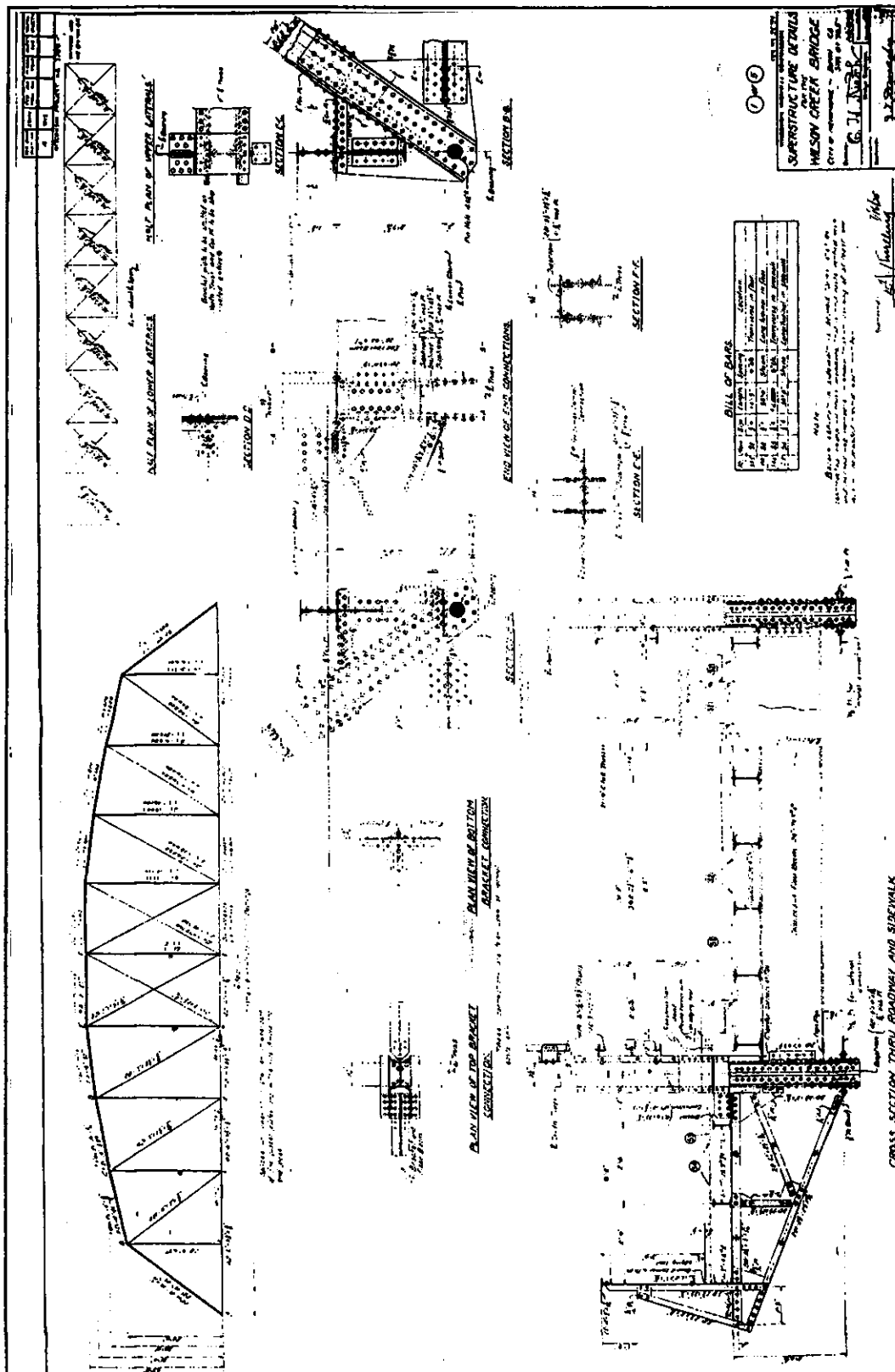
According to a report prepared in 1986, the Menomonie bridge was one of only 36 Parker overhead trusses still standing in Wisconsin. This number has since dwindled. It is currently estimated that less than two dozen such bridges survive in the state.¹⁶

Five pages of plans for the Meadow Hill Drive Bridge follow. The plans were prepared by the Wisconsin State Highway Commission in July 1925. Master copies of the plans are maintained by the Wisconsin Department of Transportation in Madison.

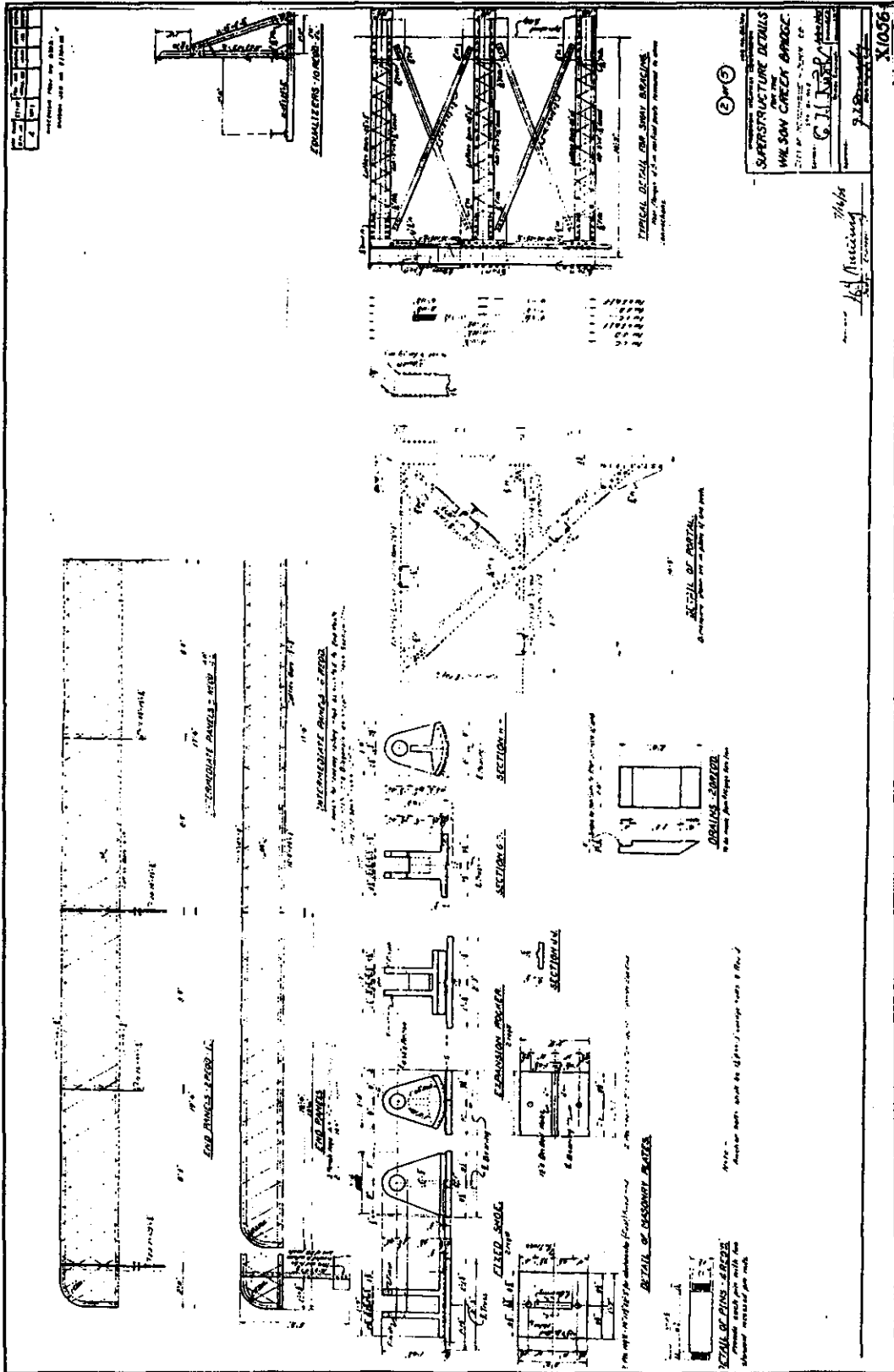
¹⁵Information by Robert Newbery, historian, Wisconsin Department of Transportation, Telephone Interview, 28 May 1993.

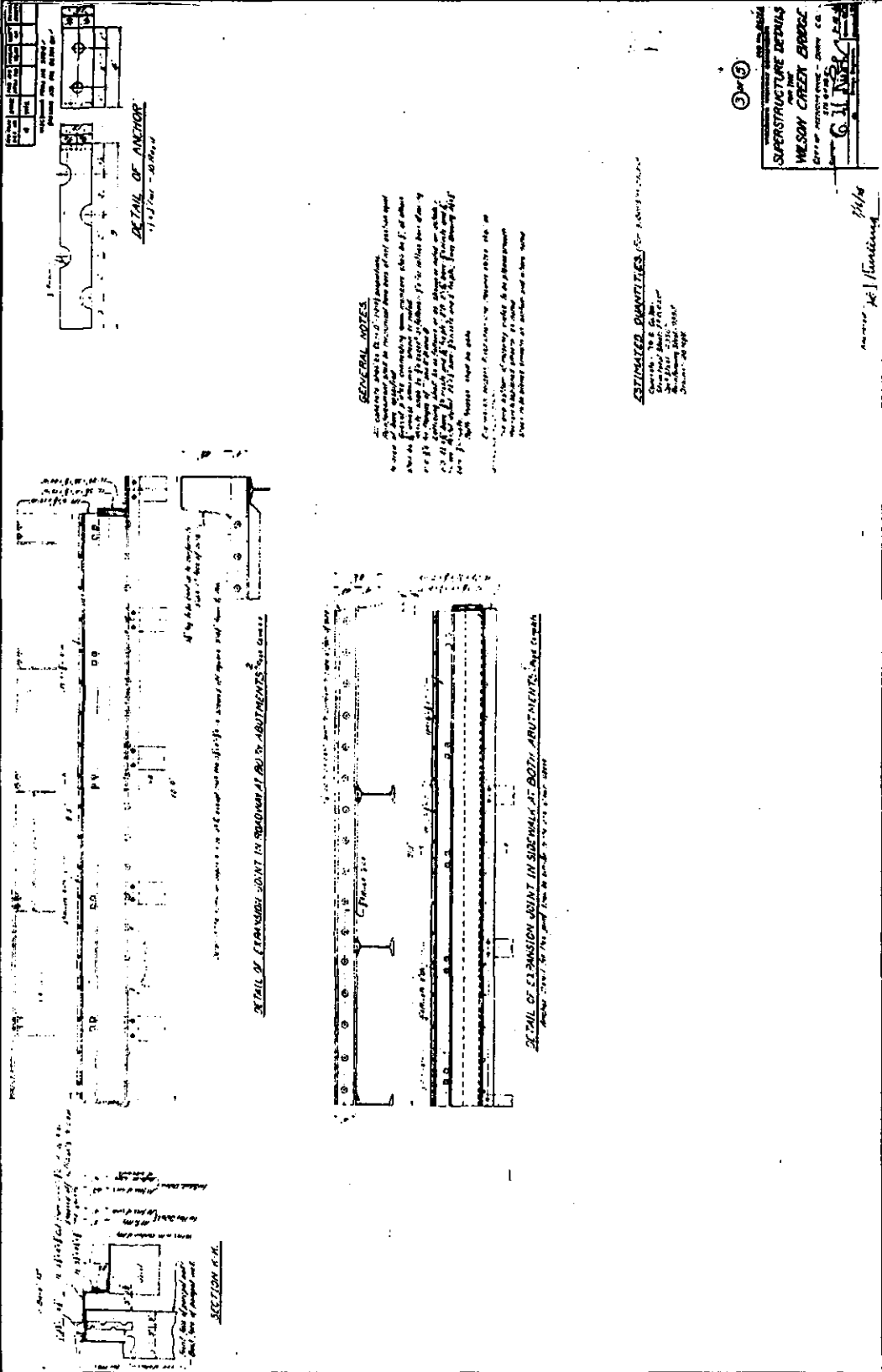
¹⁶Historic Preservation Division, State Historical Society of Wisconsin, "Cultural Resource Management," vol. 2, section 12, 15-16; additional information provided by Robert Newbery, Telephone Interview, 2 June 1993.

Meadow Hill Drive Bridge
HAER No. WI-96
Page 13

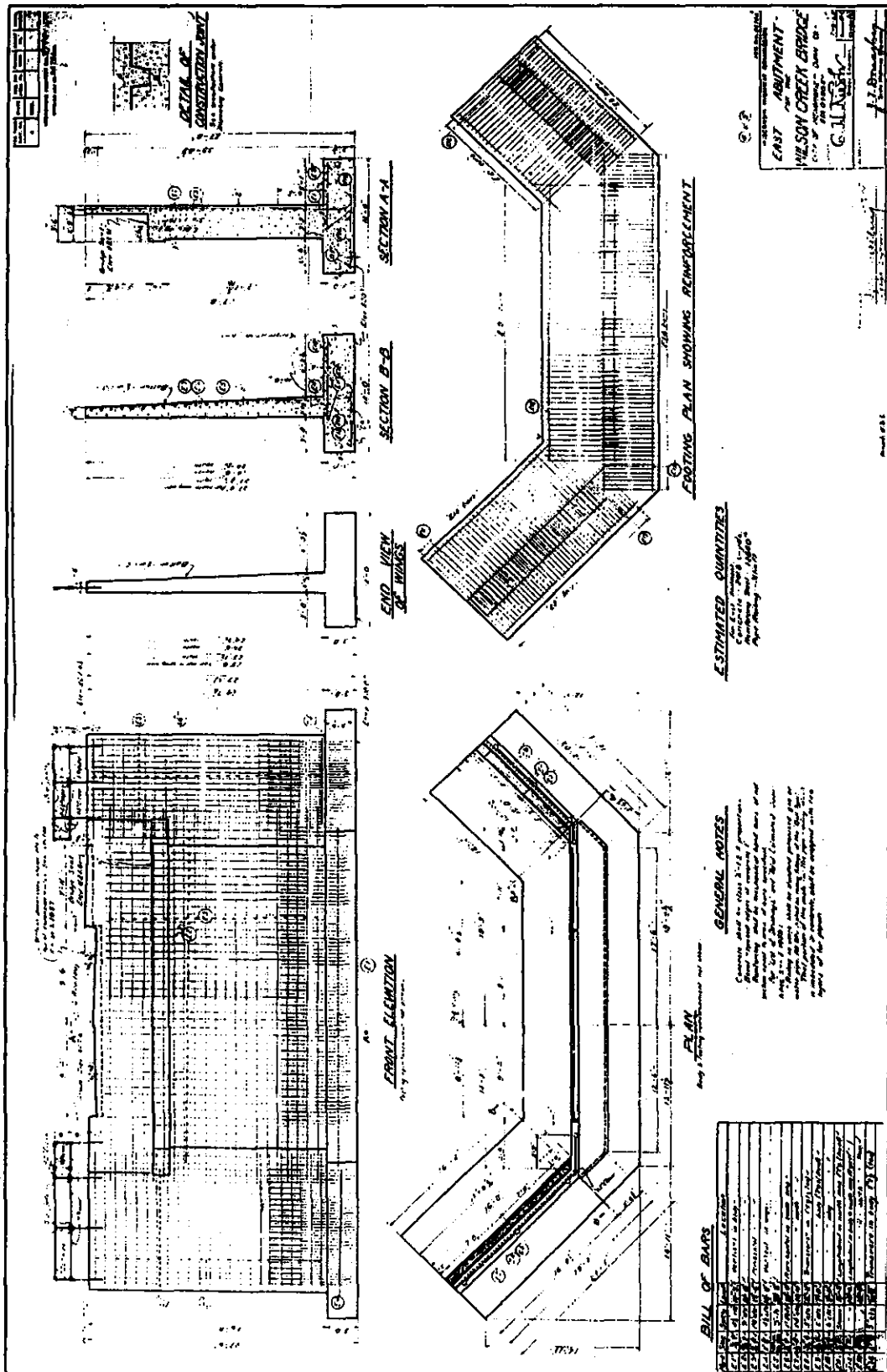


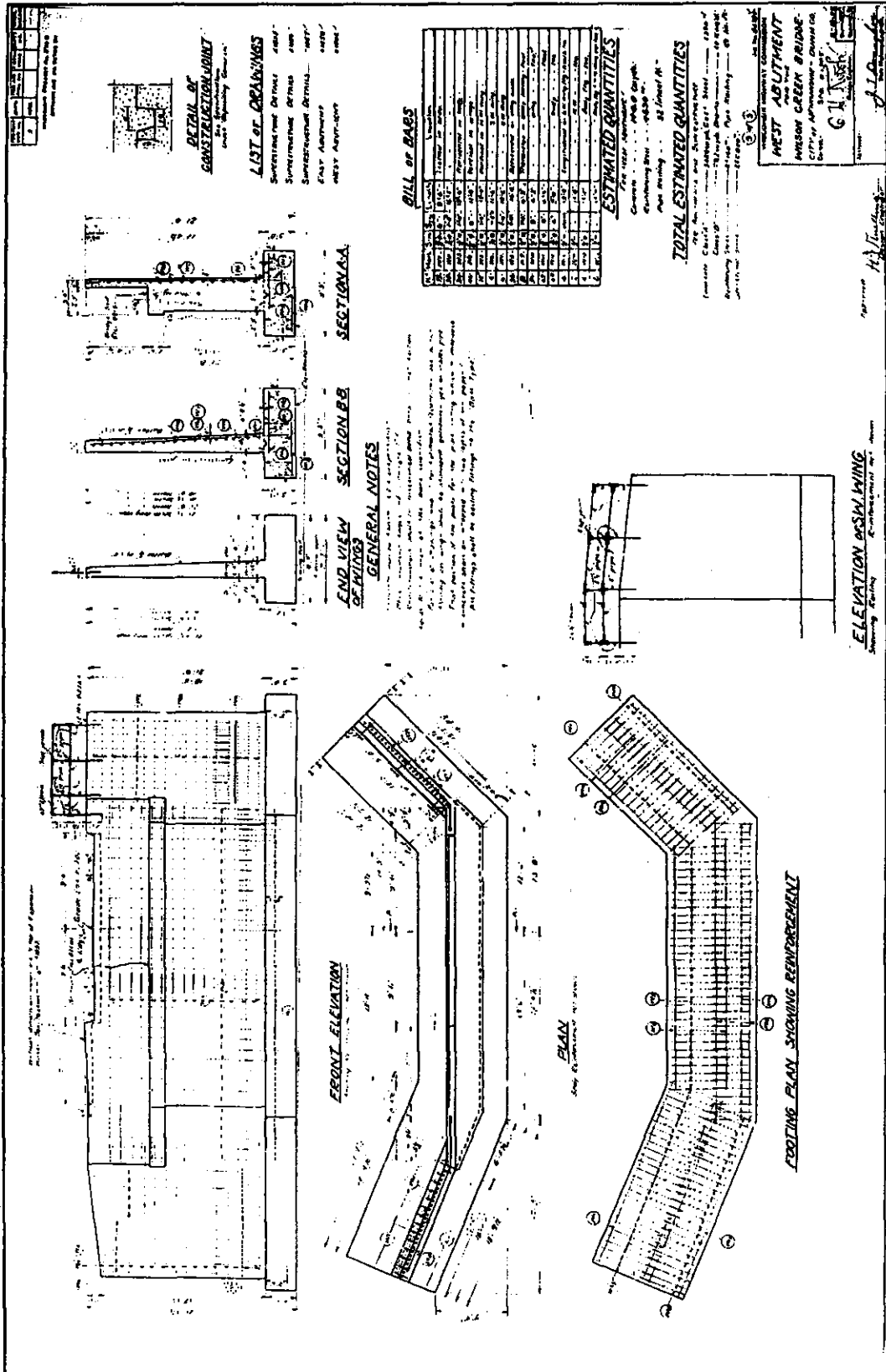
Page 14





Meadow Hill Drive Bridge
HAER No. WI-96
Page 16





SOURCES CONSULTED

Published Sources

Cultural Resource Management in Wisconsin: A Manual for Historic Properties. Madison, WI: Historic Preservation Division, State Historical Society of Wisconsin, 1986.

Curtiss-Wedge, F., and others. *History of Dunn County.* Minneapolis: H.C. Cooper, Jr. and Co., 1925.

Dunn County News. Various issues.

Forrester, George, ed. *Historical and Biographical Album of the Chippewa Valley, Wisconsin.* Chicago: A. Warner, 1891-1892.

Wisconsin Highway Commission. *Fifth Biennial Report of State Highway Activities.* Madison, WI: State of Wisconsin, 1924.

Unpublished Sources

Newbery, Robert S., Jeffrey A. Hess, and Robert M. Frame III. *Historic Highway Brides of Wisconsin*, vol. 2: *Truss Bridges.* Madison, WI: Wisconsin Department of Transportation, forthcoming.

Maps and Plans

Nash and Morgan. *Dunn County Plat, 1877.* N.p., 1877. At the Area Research Center, University of Wisconsin-Stout, Menomonie, Wisconsin.

Northern States Power Company, Wisconsin-Minnesota Light and Power Company Division. "Topographic Map, Menomonie Dam Site." February 1924. Copy at Cedar Corporation, Menomonie, Wisconsin.

Plat Book of Dunn County. Minneapolis: C.M. Foote and Co., 1888.

Wisconsin Highway Commission. "Wilson Creek Bridge." 5 sheets, plan number X1056, 16 July 1925.

Interview

Russell, John. Telephone Interview by Demian Hess, 27 May 1993.

PROJECT INFORMATION

The Wisconsin Department of Transportation plans to use federal funds to replace the Meadow Hill Drive Bridge. Since the bridge is eligible for listing in the National Register of Historic Places, this Historic American Engineering Record study has been prepared as part of the Federal Highway Administration's responsibility under Section 106 of the National Historic Preservation Act of 1966 and Section 4(f) of the Federal Highway Code. Hess, Roise and Company was retained to complete the documentation by the project engineer, the Cedar Corporation of Menomonie, Wisconsin.